

Remarks

Claim 5 has been amended, and claims 5 and 44-57 remain in the application. Applicants respectfully request reconsideration of the amended claims.

Claims 5 and 44-57 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. RE 35,589 to Fisch in view of U.S. Patent No. 4,171,866 to Tolles. Fisch relates to a hemocytometer for counting cells in a liquid sample under magnification of a microscope using a grid etched into a slide cover. In Fig. 1, Fisch shows a slide 2 and slide covers 3, 3' separated by a film 23 and a separating wall 26. Slide cover 3 has a grid 38 of 100 squares being 0.1 mm on a side for a total area of 1 square mm. Further, a cylindrical sample chamber 74 shown in Fig. 4 has a diameter of 16 mm and an area of about 200 square mm. The slide and cover glass combination of Fisch is used to count cells under a microscope through the slide cover. Thus, the area of the counting grid is small, so that the counting process is easier, and the slide cover is a transparent glass that is 0.1-0.5 mm thick. The thinner cover glass minimizes distortion, light loss and facilitates microscopic examination.

Tolles relates to a hemocytometer; and the Office Action refers to the prior art device of Figs. 1 and 2, which has a glass base plate 11 with upwardly extending integral lands 12. A precision depth chamber 14 is formed with a counting grid 15 inscribed in the bottom of the precision depth chamber 14. A cover glass 13 is placed over the lands 12, and blood cells are counted within the grid area 15. No size is recited for the glass base plate 11, but it must have a size facilitating microscopic examination and is shown to be identical in size to a disposable volumetric slide 18 of Fig. 3, that is, 25 mm x 75 mm x 1 mm. Further, as shown in Fig. 1, the precision depth chambers 14 are substantially smaller than the total area under the cover glass 13.

In order to establish a prima facie case of obviousness, it is necessary that the Office Action present evidence, preferably in the form of some teaching, suggestions, incentives or inference in the applied prior art or, in the form of generally available knowledge, that one having ordinary skill in the art would have been led to arrive at the claimed invention.

Applicants submit that a prima facie case of obviousness is not made because the cited references in combination do not teach, suggest or motivate one to provide a hybridization apparatus having the elements recited in amended claim 5.

First, claim 5 requires two noncontiguous spacer segments that extend substantially contiguously with the full lengths of the longitudinal edges of the cover slip. Contiguous means touching without a break or having a common edge, as is clearly shown in Fig. 1 by spacer bars 26,28 and longitudinal edges 30, 32 of cover slip 22. In Tolles, the lands 12 are integral with the base plate 11 and not the cover glass 13. Further, the lands 12 are displaced from, and not contiguous with, the edges of either the cover glass 13 or base 11.

Second, claim 5 requires a hybridization chamber area of at least 500 square mm between the spacer bars. In Fisch, a representative cylindrical sample chamber 74 shown in Fig. 4 has a diameter of 16 mm and an area of about 200 sq. mm. In Tolles, no size is recited for the glass base plate 11, but it must facilitate microscopic examination and is shown to be identical in size to slide 18 of Fig. 3, that is, 25mm x 75mm x 1mm. Further, the precision depth chamber 14 extends between lateral drainage grooves shown in Fig. 2. Scaling the distance between the lateral grooves shown in Fig. 2, the width of the precision depth chamber 14 is about 29% of the width of the base plate 11, that is, about 7 mm. Scaling the length of the cover glass 13 from Fig. 1, the cover glass length is about 44% of the length of the base plate 11, that is, about 33 mm. Thus, the area of the precision depth chamber 14 under the cover glass 13 is about 229 sq. mm. Referring to Fig. 3, the improved chamber 21 is about 36 square mm with a cover slip 20 width of 6 mm, col. 3, line 38. Thus, there is no teaching, suggestion or motivation in either Fisch or Tolles to provide a hybridization chamber of at least 500 square mm as required by claim 5.

Applicants submit that not only are the elements of claim 5 not shown by Fisch or Tolles, but those skilled in the art of hybridization techniques would not look to hemocytometers for clues to hybridization chamber design due to their inherent differences in function. First, the sample in a hemocytometer is viewed under a microscope to count blood cells, which requires a thinner not thicker cover glass. With a hybridization chamber,

the cover slip is removed prior to any examination, thereby permitting the use of a thicker cover slip. Second, the chamber in a hemocytometer is smaller rather than larger to facilitate a more efficient cell counting process. In contrast, a hybridization chamber is larger to accommodate a larger sample, hence placing the spacer bars contiguous with the longitudinal edges of the cover slip is advantageous. The hemocytometers of Fisch and Tolles provide for overflow of the blood upon a cover glass being placed over the base, whereas in a hybridization process, it is desirable to minimize the use of a hybridization liquid. Applicants further submit that the elements of claim 5 that are important to an optimal hybridization chamber are counter-intuitive to the design of an optimal hemocytometer.

Applicants submit that Fisch and Tolles in combination do not express, suggest or motivate one to provide the structure for a hybridization chamber recited in claim 5. Therefore, Applicants submit that the combination of Fisch and Tolles fails to provide a prima facie argument of obviousness, and that claims 5 and 44-57 are patentable and not obvious under 35 U.S.C. §1 03(a) over Fisch in view of Tolles.

Applicants respectfully submit that the application is now in condition for allowance and reconsideration of the application is respectfully requested. The Examiner is invited to contact the undersigned in order to resolve any outstanding issues and expedite the allowance of this application.

Application No. 10/021,602
Amendment dated October 30, 2007
Reply to Office Action dated September 18, 2007

Applicant does not believe that any fees are due in connection with this submission. However, if such petition is due or any fees are necessary, the commissioner may consider this to be a request for such and charge any necessary fees to Deposit Account No. 23-3000.

Respectfully submitted,

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